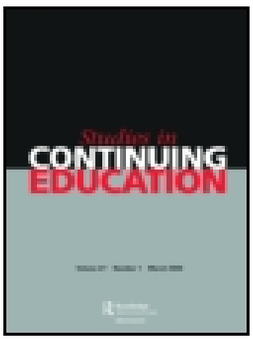

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Challenges to learning and leading the digital workplace

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ABSTRACT

Digitalisation does not only transform material constructions of workplaces and work but also social constructions for employees' interaction and learning at work. In this paper, we explore emerging challenges related to the digitalisation of workplaces aiming for an understanding of the changing prerequisites for working and competence. Our findings from a small qualitative exploratory study illustrate the complexity of the development of workplaces, characterised by strong but diffuse relationships between people, technology, and work practices. We argue that in the development of digital workplaces, a sole focus on information systems as new technology, along with training and education of their functionality is insufficient. First, the demand for new competencies in the workplace calls for understanding learning practices in everyday digital work. Second, leading the transition towards a digital workplace requires learning new leadership practices. Thus, an understanding of work rather than systems ought to be central in the future digitalisation of work, in which the systems are one part of development, not the development.

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Digital workplaces; workplace learning; information systems; workplace studies; knowledge work; peopleless offices

Introduction

The present transformation in contemporary work poses both increasing and different requirements for continuous education, and specifically for learning at work. The work-life of today is increasingly characterised by speed and flexibility, along with enhanced complexity and both specialisation and diversification (Rainie and Wellman 2012; Spinuzzi 2015). Work is becoming more decentralised and mobile (Jarrahi, Nelson, and Thomson 2017), formed around open, flexible projects, and teams (Spinuzzi 2015).

The integration of digital technologies in recent decades, often described in terms of digitalisation or digital transformation of work, also requires new competencies for learning (Reis et al. 2018; Konttila et al. 2019; Vallo Hult et al. 2020; Ala-Mutka, Punie, and Redecker 2008). Beyond automation and the streamlining of existing work

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tasks (e.g. digitisation of administrative systems) the transition to digital workplaces is changing work by challenging current practices and by creating new ones (Brynjolfsson and McAfee 2014; Susskind and Susskind 2015; Byström, Heinström, and Ruthven 2019). Access to enterprise technology outside the workplace and using consumer technologies at work is widespread (Davison and Ou 2017; Harris, Ives, and Junglas 2012). As social media have started to spread into workplaces, communication becomes less formal and top-down, making room for more inclusive and fluctuating communication structures across hierarchical levels (Leonardi, Huysman, and Steinfield 2013; Riemer, Stieglitz, and Meske 2015). Along with increased flexibility comes new responsibilities and tensions, as well as a risk of increased stress (Ayyagari, Grover, and Purvis 2011; Köffer 2015; Vallo Hult, Islind, and Norström 2021). However, social media can also contribute to a sense of coherence in work activities in complex and decentralised work environments (Forsgren and Byström 2018).

In addition to the, in retrospect, moderate development of the last decades, the massive impact of Covid-19 mitigations has caused a prolonged period of digital working worldwide (Bai et al. 2020; O'Leary 2020). This emphasises the need to reflect upon how we understand increasingly digitalised work and its consequences. Much of the prior work in the field tends to highlight the technology, along with training and education, in how to use specific systems or tools (Baptista et al. 2020; Macdonald, Bath, and Booth 2011; Ayyagari, Grover, and Purvis 2011). Research topics have evolved from computer-aided work towards reflections of technological development and digitalisation in general, addressing aspects such as collaboration, compliance, mobility, and stress and overload (Köffer 2015). We align with this development and focus on social aspects still underrepresented but essential for the development of digital workplaces. While there is no common definition of the digital workplace, one definition that emphasises the social, rather than the technological change, is that digital workplaces occur when employees collectively perform their work in digital, rather than physical workspaces, where the transition towards *peopleless offices* introduces new opportunities and challenges (Byström, Ruthven, and Heinström 2017; Byström, Heinström, and Ruthven 2019).

Digital technologies change the way knowledge and experiences are gained but also what knowledge and experiences are considered relevant. While workplace learning is an essential part of learning, less is known of learning in digital work. As pointed out by Reich, Rooney, and Boud (2015), frameworks and theories underpinning continuous education and training are generally based on traditional learning models, less apt for reflecting contemporary professional practice and learning. Engeström's concept of expansive learning (Engeström 2001, 2015; Engeström and Sannino 2010) serves better to understand these transformations in professional practices, and society in general. Individuals as well as organisations, he argues, continuously learn new things and adapt to unstable and unforeseeable activities (Engeström 2001). Expansive learning involves learning something that is not yet finished; 'the learners construct a new object and concept for their collective activity, and implement this new object and concept in practice' (Engeström 2011, 87).

It has been argued that higher education needs to emphasise developing competencies to learn and adjust to changes (Barnett 2000; Billett 2006). The abilities required for effective professional practice are the same as those needed to become a proactive and agentic learner in higher education, namely to be able to negotiate, engage and learn

(Billett 2009; Bernhardsson, Vallo Hult, and Gellerstedt 2017) for both personal and professional outcomes (Richards, Sweet, and Billett 2013). In line with Tynjälä (2013) we see a need for new forms of learning 'that enable people to engage in transformative and innovative, rather than reproductive learning, and in networked and social learning rather than in individual learning, as well as in ethical and value-conscious rather than 'value-free and objective' learning' (Tynjälä 2013, 12).

In sum, digitalisation does not only transform constructions of workplaces and work but also how employees interact and learn at work. There is a need for more research on digital and remote work in general (Baptista et al. 2020; Saridakis et al. 2020), as well as a better understanding of how new technology influences workplace learning and professionalism (Ifenthaler 2018; Fenwick and Edwards 2016). These issues are evermore present due to many organisations moving almost entirely to remote-work mode as a consequence of worldwide COVID-19 pandemic mitigations. In this paper, we aim to contribute using an empirical exploration of emerging challenges to learning and leading in the digital workplace. Guided by a set of workplace learning models as an analytical lens to examine the conditions for (digital) work practices and work competencies in transition, we seek to answer the research question: *What kinds of learning challenges are emerging in the digital workplace?*

The remaining part of the paper is structured as follows: the next section presents a selected set of theories chosen due to their applicability to workplace contexts, leading into a section that describes the explorative, qualitative research approach of the present study. Thereafter, the findings are presented as four identified themes; followed by a discussion of the findings in relation to learning and leading in the digital workplace. The paper concludes by considering the contributions of the study.

Theoretical perspective

The theoretical framing of this study is informed by the workplace learning literature adopting the view that there is no separation between participating in practice (i.e. work) and learning; people learn as they engage in everyday work activities and interact with others in the workplace (Billett 2004, 2014). The view of learning as a social process embedded in everyday life and work, rather than merely the acquisition of knowledge and skills, is central for theories of situated learning and communities of practice (Lave and Wenger 1991; Wenger-Trayner and Wenger-Trayner 2015; Wenger 1998). Learning and knowledge are seen to have both an individual and a social dimension in engagement and participation (Billett 2004, 2014). Moreover, the shared values and understandings are (re)constructed within such social interactions (Wenger 1998) in and across an increasingly complex landscape of practices (Wenger-Trayner and Wenger-Trayner 2015).

Theories of workplace learning have grown over the last two decades, evolving from an initial focus on individual learning in educational settings to encompass both formal and informal learning, on organisational, group, and individual levels (Hager 2011). Even though some learning is structured and can include guided learning, mentoring, or training programmes; in contrast to classroom education, workplace learning most often comes about in situations without explicit teaching (Billett 2014). Until recent years, it has not been viewed as learning as such, but instead as a by-product of engaging in

work activities (Eraut 2004, 2011). Eraut (2004) identifies different levels of intention of informal learning, both when learning in social settings and as a personal experience, as well as being implicit or deliberative. Billett (2002, 2004) argues against the traditional dichotomy of formal and informal learning altogether. In particular, he critiques the assumption that informal or non-formal *ad hoc* and unstructured learning would be less important (Billett 2002). Instead, workplaces are essential learning environments for professional practice and generating potentially important learning in their own right (Billett 2002, 2004, 2009).

Engeström (2001) likewise argues for a broad conception of learning. He too dismisses the assumption of individual acquisition of knowledge and skills that can be identified and taught by a competent teacher, and argues for learning ' … in which the learners are involved in constructing and implementing a radically new, wider and more complex object and concept for their activity' (Engeström and Sannino 2010, 2). Within expansive learning, professional knowledge is not acquired merely by participation in established practices, but contradictions are considered crucial as the driving force of transformation (Engeström 2001, 2015; Engeström and Sannino 2010). As an alternative to both acquisition-based and practice-based approaches, the theory of expansive learning conceptualises learning as horizontal movement and hybridisation rather than a one-way movement to progression from incompetence to competence (Engeström and Sannino 2010; Engeström 2015).

Billett (2004) emphasises that the personal epistemologies of individual learners (learners' agency and efforts, i.e. what they know, can do and value) directs their learning and how they choose to participate (or not) and what they can learn and understand from their experiences within the workplace. He also points to limitations of learning through everyday work activities, for example, inappropriate learning (i.e. what is learned or experienced can be incorrect, unhelpful or even dangerous) and lack of appropriate guidance and motivations (Billett 2016). He emphasises the close relationship between individual learning and social practice: 'Whether considering workplace learning through participation in everyday work or intentionally organized learning activities, these interdependent participatory practices are likely to shape both the learning process and outcomes' (Billett 2004, 320).

In sum, the theories on work and learning guiding the present study suggest that the ways people learn throughout their working life are varying. Understanding this diversity is necessary, since today's work life is facing an intensive, major ongoing transformation, where the need to prepare for the unknown outcome is unavoidable.

Methods

The research approach is explorative and qualitative. This work builds on, and extends, previous work in a joint R&D project in Swedish healthcare (Vallo Hult 2017; see also Nitschke, Vallo Hult, and Bigolin 2020) on the role of modern information systems for collaboration and workplace learning in healthcare. This study investigates further the specific topic of learning in digital workplaces. The original data collection was made in 2017, thus providing insights in the pre-COVID context. Given the suddenly expanded experiences of digital workplaces during the pandemic, we revisited the context of study and returned to our respondents in December 2020.

Setting and participants

The research is carried out in Sweden, where digital technology may now be considered a part of the infrastructure, with a coverage of 98 percent access to Internet at home, and 96 percent of the population using Internet (Johansson, Gulliksen, and Gustavsson 2020). The participants are professionals working in areas related to healthcare within a county council. They have typical knowledge jobs, with flexible working hours and location. They all have administrative or managerial roles in functions responsible for strategic work and policies, directing activities, and support development in various ways (e.g. project leaders, information and communications professionals, strategic development, IT, coordinators). Their workplace information environment is multifaceted, including many different technologies (e.g. e-mail, video conferencing, intranet, collaboration sites, and social media). The original group of participants in 2017 consisted of 11 persons. The validating group of participants in 2020 consisted of 7 persons (out of 10 invited), comprising a mix of original participants and persons in similar positions in the same county council.

Data collection and analysis

We used a purposive sampling approach and snowballing technique (Bryman 2015) to identify and select relevant participants. An invitation e-mail was sent to the participants describing the purpose and objectives of the study, followed by acceptance with informed consent according to Codex Rules & Guidelines (The Swedish Research Council 2015). Three semi-structured focus-group interviews were conducted with the 11 participants in the original data-collection in 2017. The interviews lasted about 1–1.5 h and were recorded. The excerpts used in the findings section are translations from original interviews in Swedish by the first author (Table 1).

The data analysis focused on the participants' perceptions and experiences of their work situation. During each focus group interview, key topics and insights from the discussions were summarised by the interviewing researcher together with the participants as a first instance of participant validation (Bryman 2015). A basic coding scheme, describing initial nodes (themes), was developed based on the research question and preliminary analysis. The most salient themes were: flexibility, future, leadership, responsibility, technology, transformation, information flows, information security, and ethical considerations. The next step included multiple readings of data, looking for emergent patterns, connections, and relationships in the material. This was followed by an iterative process of reading and coding, moving between empirical and theoretical insights and merging and adding new themes. The qualitative data analysis software NVivo 11 was used to support the data analysis process (cf. Bazeley and Jackson 2013).

Table 1. Summary of empirical data and participants.

Data	Year	Participants
Two workshops, documentation and research notes from working meetings.	2015	7 non-medical professionals (information and communication professionals and managers).
Three semi-structured focus group interviews	2017	11 non-medical professionals or medically trained with administrative or managerial roles.
Respondent validation	2020	7 persons, a mix of original participants and persons in similar positions in the same county council.

The data in the validation round in December 2020 was collected to reflect the findings from the 2017 data. The participants on this round were asked, via an e-mail form, to agree, partly agree or disagree and comment on the results arrived at on the basis of the original data-collection (cf. Bryman 2015). The identified challenges concerning learning and leadership were still deemed highly accurate, whereas the issues around technology and flexibility were perceived to be less problematic.

Findings

The findings on emerging changes and challenges, and corresponding demands for competencies, related to the digital workplace are specified in Figure 1. This summarises the essential aspects of the digital workplace in relation to everyday work identified in the data. The four challenges with illustrative quotes for each dimension are discussed below.

The challenge of learning flexibility

The digital workplace entails increased freedom, autonomy and flexibility to choose how, where and when to work. Whilst mostly experienced as a positive change, flexibility and accessibility also have their downsides, such as stress and difficulties in setting boundaries between private and working life. From a learning perspective, much responsibility is placed on the individual employee to find the balance and to continuously learn and develop new skills and strategies to deal with the digital workplace. The respondents

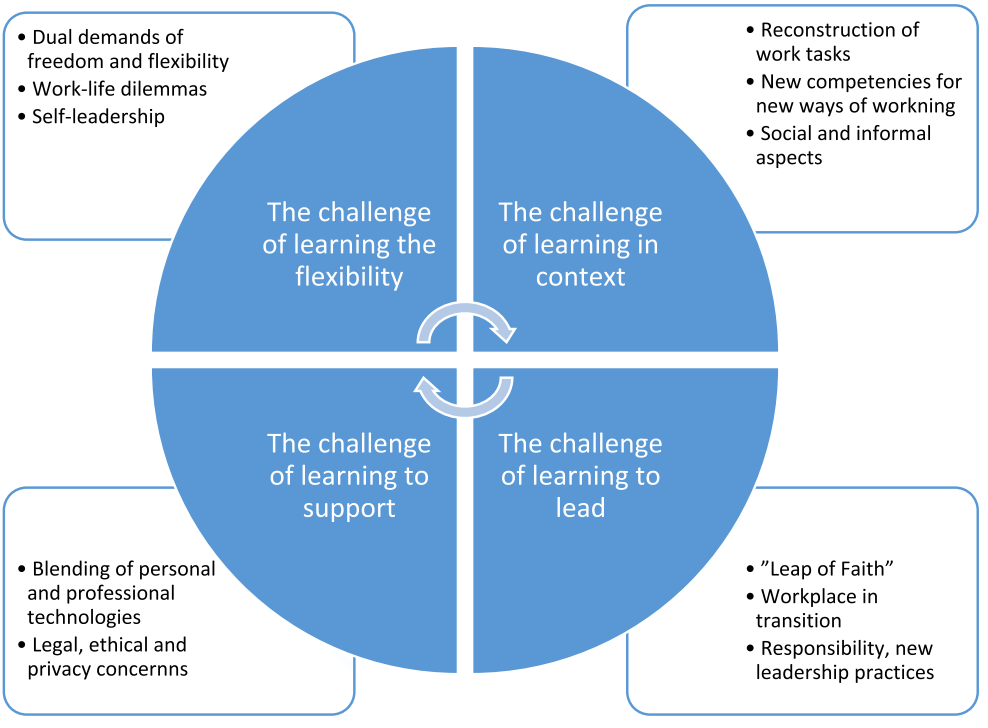

Figure 1. Dimensions of the digital workplace and related challenges for learning.

repeatedly referred to this duality, in terms of interconnected positive and negative aspects of the digital workplace.

Working from home was considered more effective, in particular for work tasks that demand focus and concentration: '*Now I do a lot of work at home for an hour or two, that maybe take me five hours in the hospital because I get disturbed.*' Participants also referred to the work environment in itself being different and reflected on why working outside of the office is much more productive: '*there are other disturbances, but in some ways when you sit at home, you can tune out and decide for yourself.*' Autonomy was considered an important aspect – to feel in control over their tasks and working hours – however, the responsibility to manage the new demands may impose feelings of less control: '*It is hard to know what is reasonable, regarding time and effort.*'

The respondents were often referring to e-mail, and e-mail available on smartphones in particular, as the real turning point of flexibility: '*I would say that this is what has changed the work situation for all of us, whatever work you do; you are available at all times, wherever you are.*' They also noted that the use of smartphones at work has led to changes in communication patterns, with more short and fast messages '*sometimes using e-mail like a chat that keeps going on back and forth.*' They described various strategies for coping with disruptions and the negative aspects of digital work, such as stress and overload. For instance, by scheduling time in the shared calendar for personal work and by disabling notifications: '*I had to turn it off eventually because it kept popping up*' and by simply surrendering to not keeping up, being reassured that if something is critical people will remind or use other measures to make contact. They expressed that there is an increasingly more general understanding of (un)urgency and (off-)work time. Although, as one participant noted, e-mails that do not need immediate attention: '*… may still alert the "work brain" even if it's something I cannot act upon, it means I would have that concern in my mind until back at work.*'

The participants further described unwritten rules and understandings of digital work that evolve within the workgroup, sometimes in ways that may not be beneficial. For instance, concerns were raised about the requirement of constant availability, as a pressure that individuals impose upon themselves, without expectation from the employer. Participants highlighted the importance of attending to such unwritten rules and misconceptions: '*when you are under the impression that others have certain expectations, like with the e-mail culture, which may not be true.*'

In sum, this theme highlights learning challenges created by increased flexibility at work. Respondents in 2017 emphasised how this flexibility corresponded to increased responsibility to find the balance as individuals, as well as to learn and develop new skills to handle the challenges in the digital workplace. This theme was still considered as highly relevant by the validating group of participants in 2020.

The challenge of learning in context

The importance of social and physical spaces for informal communication and learning was emphasised and identified as an aspect not easily transferred into the digital workplace. New skills and habits to interact at the workplace are required in addition to technical skills to use specific tools, including how to lead and participate in digital work. The respondents were positive towards the benefits of digital work in terms of access to

information and collegial communication, pointing to advantages such as: '*finding informed co-workers [or] that someone has a colleague I can contact regarding a specific matter.*' However, while the digital workplace provides opportunities for extensive collaboration, knowledge sharing, and informal learning, there is also a risk of becoming isolated. One participant raised a concern of '*us becoming more like isolated islands, lonely individuals behind our computers, instead of working as a team together.*' Another referred to a fear of missing insights on each other's work and expertise: '*we need to have knowledge about one another to be able to cooperate.*' They also commented on the risk of exclusion, especially in organisations with a tradition of hierarchal structures and traditional views of expertise and professional knowledge. It was viewed as distressing not to understand how to use a system that is supposedly simple: '*… it's a matter of prestige and to have the courage to expose yourself and show your lack of skills and knowledge.*'

The participants were aware that they were in a transition between old (analogue) and new (digital) work practices and reflected on adjusting to using digital technologies for everyday work: '*… we will get better at learning how to use the new tools and become disciplined, so to say, just as we have done before […] we will learn this too*'. The importance of social proximity and informal communication for learning in the workplace was highlighted as one aspect that may not be easily transferred into the digital workplace. Repeatedly the respondents emphasised the importance of personal communications in the digital workplace:

> I miss the personal meeting, in many situations when you try to have dialogue via e-mail instead of a meeting or even a phone call, in my opinion, the quality of the dialogue is not as good, and you may not solve the problems equally well.

This might be related to an increased need for common rules and strategies to get adjusted to digital work, for instance concerning attention to e-mails and taking phone calls during meetings: '*I would never have thought that you need guidelines for how to behave in a meeting, but that is because of the digital development.*'

In sum, this theme illustrates the importance of considering individual and social aspects of work in the transition to digital work practices. The participants in 2017 described changes in formal and informal collegial communication and collaboration while learning to be a co-worker in everyday digital work. The 2020 respondents confirmed this theme's content as being highly relevant in the increased practice of remote working.

The challenge of learning to support

Digital workplace accentuates security and privacy concerns due to blurring boundaries between personal and professional life and the easy access to information using different devices. Tensions arise between the employees' needs and their desires to use their own choice of IT at work and the demands for IT security and control from the employer's perspective. Too much control inhibits the opportunities for development, while at the same time clarity is needed on what is allowed.

The participants mentioned several examples in which the IT department proved to be an obstacle rather than support: '*I think about the signal this sends, like with the iPads, we*

have been through that process, and it is such a procedure you start to feel like you are doing something unauthorized.' One of the participants referred to a tendency to apply a better-safe-than-sorry strategy on information security issues, which inhibits the possibilities of digitalisation:

> "… we have 10%, which is critical information that needs to be secured, and that just spills over to everything else, and people want to try to make it 100%, and it is really hard, and then it leaks like a sieve".

Compared to early IT implementations in the workplace, which were characterised by anxiety and resistance toward the technology, there was a consensus among participants that '*it is no longer a question of if, but how?*' They pointed to a demand for new competence for people working in digital workplaces, but also among IT professionals and managers: '*when we order new technology, new systems, we're basing this on old work methods, stuck in the ways we work now instead of figuring out how we could do it instead, using this new technology.'* As expressed by one of the respondents: '*the ability to think about the unknown being a crucial one for the future.'*

Clearly, the digital workplace brings about new concerns due to the use of technology and easy access to information using different devices. The key challenge in this theme is learning to support the digital workplace. This requires a holistic perspective and finding the balance between protected and open information as well as the choice of tools. In addition, there is a need to increase attention to handle employees' questions and a need for support at different levels.

In sum, the 2017 participants highlight the needs of making use of the available technology and setting the policies to support more advanced use. Whilst still important when it comes to information security, the 2020 participants note that there is now a much more open attitude to the use of private equipment. Overall, support related to the digital workplace was perceived as less challenging by the 2020 participants, compared with the attitudes of those in 2017.

The challenge of learning to lead

The digital workplace has historically developed from a technocentric point of view, while the consequences are as much, if not more, of a social rather than technical nature. As described in previous themes, the digital workplace places high expectations on people taking responsibility for their work and their ability to plan and prioritise their work tasks. This requires altered strategies within the organisation and leadership, together with clear and explicit motives relating to the development of the digital workplace to organisational culture rather than IT and technology. In the end, it takes courage to change and '*to dare to take the Ronja leap [a leap of faith] you can say*.' This is to a large extent a leadership issue, in relation to flexibility and control of work, which makes coaching and confirmation important components: '*So it requires more of management to have people work more freely, and another type of leadership perhaps.*' Another respondent pointed out that flexibility '*can create tremendous stress for many people, it may sound really good but not many people can handle having a free schedule, so the coaching and confirmation I would say is extremely important.'*

They also shared feelings of frustration due to a perceived lack of digital strategies within the organisation and passive leadership, along with unclear and unspoken motivations and drivers of digital change. One participant reflected on the topic by stating: '*In my world, this is not about IT development, but it is about the organization and development of work practices.*' Another one pinpointed that '*we have the technology, but this is not about which buttons to push.*' Hence, it is important to recognise that IT-related projects are part of organisational development and problems occurring related more to organisational culture than IT *per se*:

> The problem is that we have done everything backwards. That is the case with everything related to digitalization and the Internet […] If we really want to gear up, then we must start to simplify and leave things along the way, we cannot stay and work in parallel ways.

This theme illustrates that, whereas the digital workplace has often been approached using a technocentric view, the consequences are equally, or perhaps moreso, social than technological. According to the participants in 2017, the key challenge is to revise leadership to level up with the new ways of working in order to provide preconditions for developing sustainable work practices. The 2020 participants underlined the continued need for developing leadership for digital workplaces.

Discussion

This paper has addressed challenges related to emerging digital workplaces. Clearly, as digitalisation increases, the conditions for work and consequently for workplace learning changes. Along with this development, work practices have changed, and new norms, attitudes, and cultures have emerged (Jarrahi, Nelson, and Thomson 2017; Forsgren and Byström 2018; Wajcman and Rose 2011). This study contributes to research on the new emerging forms of decentralised work that takes place outside of traditional offices (Jarrahi et al. 2020; Baptista et al. 2020). By identifying concerns of the digital workplace, findings from this study also contribute to identified gaps in understanding of how digital technologies integrate into complex work environments (Forsgren 2018). Based on our empirical data, we are able to outline two specific considerations.

Firstly, the demand for new competencies for working calls for *understanding learning practices in the everyday digital workplace.* The view on the digital workplace with embedded flexibilities as both a burden and a blessing is a challenge that requires attention in order to gain benefits and avoid pitfalls, such as information overload and digital stress (Mazmanian, Orlikowski, and Yates 2013). These challenges are not new, but there is an altered need to understand how digital workplaces revise work practices (Byström and Pharo 2019). From a learning perspective, the findings support initiatives to increase digital competence as important aspects of lifelong learning in the workforce (Ala-Mutka, Punie, and Redecker 2008), while it highlights the primacy of the learning to become a competent, confident and, not least, content worker in an increasingly digital work environment. Our findings are illustrative for a reconstruction of work practices as a consequence of introducing new technology. As was addressed by the participants in this study, information flows are multiple and altered in a digital workplace, and the ability to navigate and make sense of them is crucial. Participants in this study described this as a learning process, where they continuously develop and learn in

collegial communication and collaboration, pointing also to increased awareness and advantages of finding collegial expertise (Leonardi 2015). This is also in line with the notion that learning and change at work occur interdependently, i.e. individuals' learning and the transformation of workplace practices (innovation) co-occur – they are interdependent – reliant on one another (Billett 2014). The participants also mentioned how unwritten rules and understandings of digital work evolve, sometimes as bad habits, illustrating what Billett (2016) describes as inappropriate learning. Furthermore, the findings underline the importance of learning through practice (Tynjälä 2008; Reich, Rooney, and Boud 2015), and that the digitalisation of work will require continuous, ongoing and integrated learning efforts through participation in the (digital) workplace (c.f. Billett 2004), that is, it is not about learning a skill but how to live and work in a digital environment.

Secondly, leading the transition towards the digital workplace requires *changed leadership practices*. As new digital technologies become part of everyday work practice, it is vital to recognise that these technologies, and subsequent changes to work and learning, cannot be understood out of the social context of working. This may be difficult to handle with traditional (business) models and structures (Jarrahi, Nelson, and Thomson 2017). After years of focusing on technology, space needs to be given to employees and their leaders rather than IT departments as driving force in the further digital transformation.

The ongoing digital change challenges professionals' everyday practice, as exemplified by research on enterprise social media (Leonardi, Huysman, and Steinfield 2013; Riemer, Stieglitz, and Meske 2015; Forsgren and Byström 2018) and the transformation of the professions (Brynjolfsson and McAfee 2014; Susskind and Susskind 2015; Vallo Hult, Islind, and Norström 2021).

Working in flexible and fluctuating digital environments set requirements for collegiality and competencies among the individual workers, but also demand new and changed leadership practices. Consistent with processes of expansive learning (Engeström 2001, 2015; Engeström and Sannino 2010), participants implied that in digital work practices, there are no exact answers or experts, neither amongst the workers nor their leaders. The ability to learn and think for an unknown future was explicitly mentioned as crucial.

The ability to lead digital workplaces and to support workers is a great challenge for organisations (cf. Köffer 2015). Participants emphasised how the responsibility to learn and gain knowledge is often imposed upon them as individuals, especially when describing how they respond to changes and challenges from the digitalisation of work. They called for digital strategies and clearly stated motivations and drivers of digital change to facilitate joint learning throughout the organisation.

Conclusion

The main contribution of this paper is to exemplify the ongoing change to digital workplace in the advent of *peopleless offices* (Byström, Ruthven, and Heinström 2017, 2019) and identification of leadership and workplace learning as particularly timely issues for this development. The previous focus on the development of digital workplaces has emphasised technology, along with training and education on how to use specific systems or tools. Findings from this study highlight the complexity of the development by a focus on the social aspects of the digital workplace. This contribution is two-fold, as

outlined in the discussion. First, the demand for new competencies in the workplace calls for understanding the learning practices in everyday digital work. Second, leading the transition requires changed leadership practices. Thus, a better understanding of work practices rather than systems is brought to the fore, with greater focus on generating a joint purpose and a holistic picture, where the systems are *part* of the development, not *the* development.

A final remark concerns the significant development of digital workplaces at the time of finalising this paper. Whereas the empirical material and the analysis were conducted prior to the Covid-19 pandemic in 2020, the issues are ever more relevant when digital workplaces have accentuated from a supplementary part of working into a full-scale movement towards *peopleless offices* due to restrictions to access physical workplaces. Both the respondent validation, December 2020, and renewed interest in the findings from the participating organisation confirms this. The experiences will inevitably have consequences long after the re-opening of societies and workplaces, making the present issues an important area of research in future studies.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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